

400W DC to AC Power Inverter



User's Manual

Your 400 Watt Power Inverter converts 12 Volt vehicle battery power into 110 volts of AC power. You can use the inverter in your vehicle to operate many types of appliances that use AC power such as TVs, VCRs, portable computers, power tools and lights for emergency or camping use.

The inverter works with your vehicle's engine turned on or off (accessory mode). It provides a continuous output of up to 400 watts.

DESCRIPTION

- **1000W Peak Power:** Allows you to power appliances that require a large amount of initial (peak) power to work (such as many TVs and motor-powered equipment).
- **Low Battery Alarm:** The inverter sounds an audible alarm then turns itself off if the source battery becomes too low.
- **Auto Shutdown/Reset Protection:** The inverter temporarily shuts itself down to protect itself from overheating.
- **Overload/Short Circuit Protection:** The inverter automatically turns itself off if the connected load is too high or if it shorts.
- **Fuse:** The inverter comes with a fuse(s) already installed that can be changed if damaged.
- **Dual AC Outlets:** Allows you to power two appliances at the same time.

SAFETY PRECAUTIONS

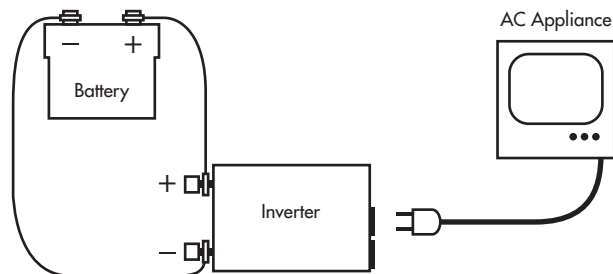
- **Do not use the inverter in a positively grounded vehicle.**
- Do not attempt to open the inverter casing. The high voltage inside the unit is the same type of power as your electrical outlets at home.

- Do not operate the inverter in or around water. The voltage of the unit makes it an electrical shock hazard if operated in wet conditions. Do not let the cord of the inverter or any plugged in appliance's cord get wet.
- Do not connect the AC inverter directly to another AC power source.
- Keep it away from children: The inverter produces power just like your AC wall outlets at home and should be treated seriously.
- Allow at least 2 inches of clearance around the inverter for air flow.
- If you operate the inverter in a moving vehicle, you need to secure the inverter to prevent it from shifting around while the vehicle is moving.
- If there is anything wrong with the inverter, disconnect all of the power.
- The followings operation will damage and void the warranty of the inverter:
 - Reversing polarity by connecting the wires to the incorrect terminals.
 - Connecting the inverter to a power source greater than 15 Volts DC.
 - Operating the inverter and battery in or around water.

BASIC OPERATION

- Determine the right operating voltage for both input and output of the inverter.
- Connect (+) from the inverter to (+) of battery terminal and connect (–) from inverter to (–) of battery terminal.
- Turn ON the power switch that is located at the front of the inverter, and the green LED light will light as indicator that the unit is working.
- Plug your appliances into AC sockets at the front of the inverter.

PRODUCT USAGE DIAGRAM



RECOMMENDATIONS

- If the power inverter makes a beeping sound, turn OFF the power inverter, disconnect all appliances from inverter and disconnect the inverter from the power supply. The beeping sound is the low battery warning, which indicates that the voltage of the battery power supply is getting low. Please restart the vehicle engine to charge to battery before using it to operate the power inverter again.
- When you are not using the inverter, turn the power switch to OFF and disconnect the inverter from power supply.
- Disconnect the inverter when starting the vehicle's engine.

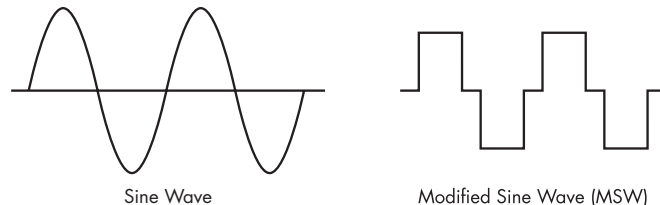
BATTERY CONNECTION

If you choose to connect the inverter directly to your battery terminals, it is important to connect with the right polarity: Connect (+) from the inverter to (+) of battery terminal and connect (-) from inverter to (-) of battery terminal.



MEASURING THE AC VOLTAGE

This inverter's AC output is a modified sine wave (MSW) 115 volts AC. The comparison of modified sine wave and household AC is shown in the figure below.



This modified sine wave has a root mean square (RMS) voltage of 115 volts. Most ordinary AC voltmeters are calibrated to read "average" voltage and assume that the AC waveform will be a pure sine wave. These meters will not correctly read MSW voltage, and will display about 20 to 30 volts too low. Any multi-meter identified as "TRUE RMS" will accurately read MSW correctly.

HINTS

Adding an Extension Cord

If you need an extension cord, we recommend the use of an extension cord between the AC output of the inverter and the AC appliances. You may use up to 100 feet of high quality extension cord. A long cord will result in reduced output power.

Buzz in Audio Systems

Some stereo systems and "boom boxes" will emit a buzzing noise from their loudspeakers when operated from the power inverter because the power supply in the device does not adequately filter the modified sine wave produced by the

power inverter. The only solution is to use a sound system that incorporates a higher quality power supply.

Operating a Television

Picture tubes have a degaussing coil that uses a high initial surge of power to light up the screen from a "cold start." If the TV does not start up on the first attempt, try to switch on the TV every 2 to 3 seconds until the screen comes on. Sometimes, it may take 2 to 5 tries before starting.

Television Interference

Operating the power inverter can interfere with television reception on some channels. If this situation occurs, the following steps may help to alleviate the problem:

- Make sure that the chassis ground lug on the back of the power inverter is solidly connected to the ground system of your vehicle.
- Do not operate high power loads with the power inverter while watching television.
- Make sure that the antenna feeding your television provides an adequate "snow free" signal and that you are using good quality cable between the antenna and the television.
- Move the television as far away from the power inverter as possible.
- Keep the cables between the battery and the power inverter as short as possible and twist them together with about 2 to 3 twists per foot. This minimizes radiated interference from the cables.

MAINTENANCE

Very little maintenance is required to keep the inverter operating properly.

HEAT DISPERSAL

The inverter generates heat while it is working. This is not a malfunction. However, if the inverter gets too hot while working it will turn off by itself. Position the inverter where air flows freely around it to allow the heat to disperse. The inverter's thermal protection prevents it from operating when its temperature exceeds $130^{\circ}\text{F} \pm 10^{\circ}$ ($55^{\circ}\text{C} \pm 5^{\circ}$).

TROUBLESHOOTING

Condition	Solution
Poor contact	Clean contact parts thoroughly
Battery voltage is too low	Start the engine to recharge the battery. Replace the battery if needed.
Shutdown on overload	Reduce the inverter's wattage load
Thermal shutdown	Allow the inverter to cool down by reducing the load or turning it off for a while.
Receptacle has no power	Check the receptacle wiring.

400W DC to AC Power Inverter by Wagan Tech

SPECIFICATIONS

All specifications are typical at nominal line, half load and 77°F (25°C) unless otherwise noted. Specifications are subject to change without notice.

Name	Description
Input	12V (10–15V) DC
Output	110V AC
Output frequency	60 Hz
Output waveform	Modified Sine Waveform
Continuous power	400 Watts
Surge Power	1000 Watts
Efficiency	Approximately 90%
Current drawn when no load	< 0.3 Amps
Battery low alarm	10.5 ± 0.5V DC
Battery low shutdown	10 ± 0.5V DC
Alarm and thermal shutdown	130°F ± 10° (55°C ± 5°)
Internal DC fuse	35 Amps
External DC fuse	None
AC output sockets	Two 3-prong outlets
USB output sockets	Two outlets
Power switch	DC input ON/OFF control
Dimensions (L x W x H)	5 x 4 x 2 inches
Net Weight	650 g

☒ Please activate my limited warranty for WAGAN Corp.

Name	
Mailing address	
City	
State, Zip code	
E-mail address	
Item purchased	Item no.
Store name	
Date of purchase	
Signature	Date

All WAGAN Corporation Products must be registered within (30) days of purchase to activate this warranty. Mail the complete registration form, along with a copy of the original sales receipt to:

Attn: Customer Service
WAGAN Corporation
31088 San Clemente St.
Hayward, CA 94544

Detach and return the opposite page

WAGAN CORP. LIMITED WARRANTY

All WAGAN Corporation products are warranted to the original purchaser of this product.

Warranty Duration: This product is warranted to the original purchaser for a period of one (1) Year from the original purchase date, to be free of defects in material and workmanship. WAGAN Corporation disclaims any liability for consequential damages. In no event will WAGAN Corporation be responsible for any amount of damages beyond the amount paid for the product at retail. In the event of a defective item, please contact WAGAN Corporation at (800) 231-5806 to obtain a Returned Merchandise Authorization number (RMA#), and return instructions. Each item returned will require a separate RMA#. After you have received the RMA# and the return instructions from WAGAN Corporation, please follow the instructions and send the item with PREPAID SHIPPING, along with all of the required documentation, a complete explanation of the problem, your name, address and daytime phone number. WAGAN Corporation will, at its option, replace or repair the defective part.

A Returned Merchandise Authorization number (RMA#) is REQUIRED when sending in any defective item. WAGAN Corporation is not responsible for any item(s) returned without an official Returned Merchandise Authorization number. The item(s) must be returned with prepaid shipping. WAGAN Corporation is not responsible for any shipping charges incurred in returning the item(s) back to the company for repair or replacement. This warranty is void if the product has been damaged by accident, in shipment, unreasonable use, misuse, neglect, improper service, commercial use, repairs by unauthorized personnel or other causes not arising out of defects in materials or workmanship. This warranty is effective only if the product is purchased and operated in the USA and does not extend to any units which have been used in violation of written instructions furnished.

Warranty Disclaimers: This warranty is in lieu of all warranties expressed or implied and no representative or person is authorized to assume any other liability in connection with the sale of our products. There shall be no claims for defects or failure of performance or product failure under any theory of tort, contract or commercial law including, but not limited to negligence, gross negligence, strict liability, breach of warranty and breach of contract.

Warranty Performance: During the above one (1) Year warranty period, a product with a defect will be replaced with a comparable model when the product is returned to WAGAN Corporation with an original store receipt. The replacement product will be in warranty for the balance of the one (1) Year warranty period.
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